The *NEW* Luftwaffe in Action

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The *NEW* Luftwaffe in Action

edited and illustrated by Lou Drendel

written by Peter Doll and Hermann Dorner

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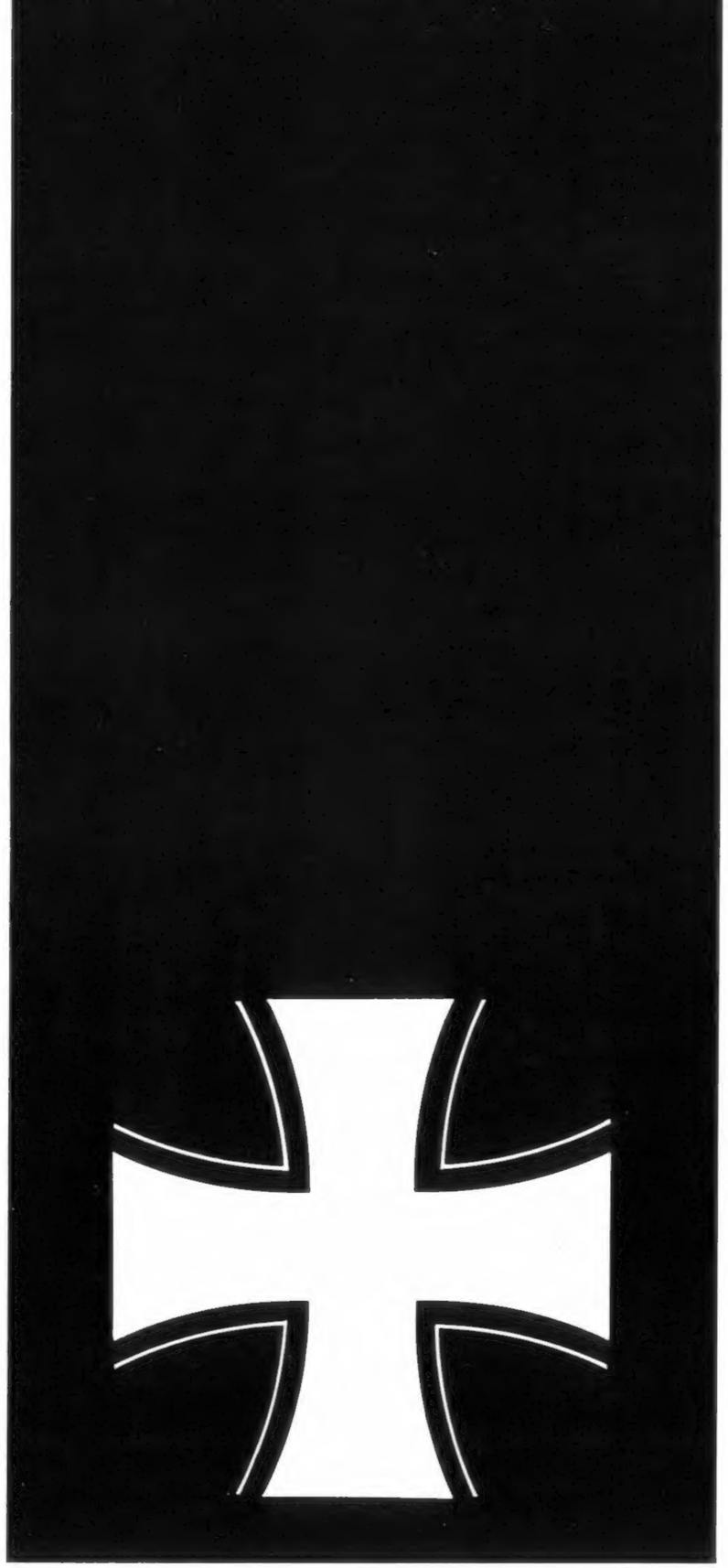

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Ready for take-off, with her three external fuel tanks filled and cameras ready, a RF-4E "Phantom" **photo-reconnaissance plane of Aufklärungsgeschwader 52 (AG 52) at Leck AFB Germany, 1972.**

THE POST-WAR LUFTWAFFE [Bundesluftwaffe]

In March 1955 the German Federal Parliament - the **Bundestag** - ratified the Treaties of Paris (**Pariser Verträge**) which had been concluded on October 23rd, 1954. With this act the Bundestag agreed to the Federal Republic of Germany joining NATO. As soon as the Volunteer Bill (**Freiwilligengesetz**) had passed the Parliament on July 25th, 1955 the building-up phase of the new (post-war) German Armed Forces - and with them the **Bundesluftwaffe** (GAF) - could start.

At the beginnning of 1955 there was a great lack of pilots, especially of those who could handle a modern jet. The only hope was to win a great number of former WWII Luftwaffe Pilots who now earned their living in various civilian jobs.

On July 1st, 1955 the United States Air Force Europe (USAFE) took into service the so called 'USAFE Temporary Flying Training Command' (later named 3767 Flying Training Group) at **Fürstenfeldbruck,** a town near Munich in Bavaria. Its nickname **'Fürsty'** is known in the USAF as well as in the GAF. This 'Flying Training Command' consisted of three wings: the 7330 Flying Training Wing (based at Fürstenfeldbruck), the 7351 Flying Training Wing (based at **Landsberg/Leck**) and the 7331 Technical Wing (based at **Kaufbeuren**). After the later disbandment of this USAFE Temporary Flying Training Command the Bundesluftwaffe took possession of its facilities and 'Fürsty' became homebase of Flying School 'B' (advanced pilot training), Landsberg/Leck became homebase of Flying School 'A' (undergraduate pilot training). Kaufbeuren became the home of a technical school. This remained during the whole building-up phase of GAF.

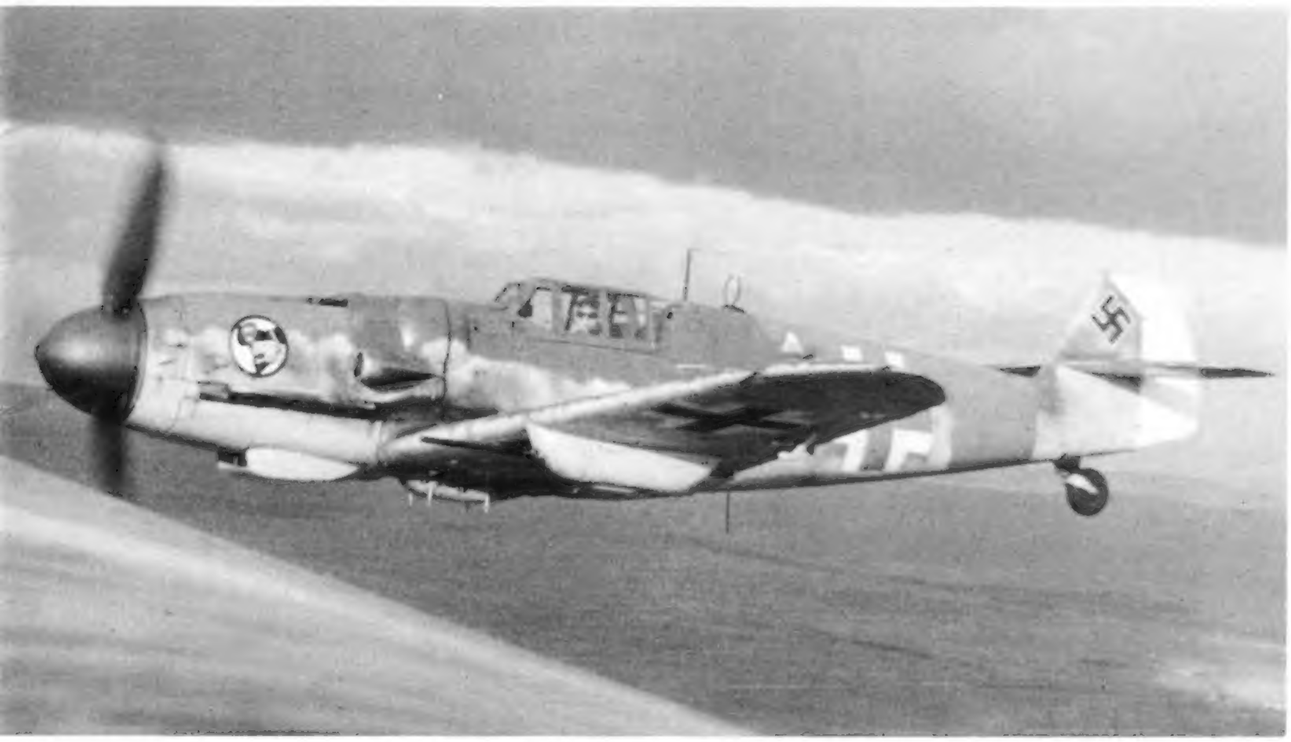
The first German flying trainees arrived at 'Fürsty' on January 3rd, 1956. They had all been former WW II 'Luftwaffe' pilots and were destined to serve as instructors as well as wing-leaders on the first GAF combat aircraft, the Republic F-84F 'Thunderstreak', after a refresher course. Starting July 1955 six high ranking officers of the GAF took part in a nine month flying refresher program in the United States and Great Britain.

During the Summer of 1958 enough retrained and newly trained pilots were available and on June 20th, 1958 the first wing of the post-war Luftwaffe - Fighter Bomber Wing 31 - was officially taken into service by General Kammhuber, the first Commander in Chief of the GAF. In his speech on this event, General Kammhuber fixed the official birthday of the post-war Luftwaffe as the 24th of September 1956, when the first three training aircraft - one Piper L-18, one North American T-6 and one Lockheed T-33A - were taken over with the new Black Cross. Shortly before this date the first ten post-war pilots had finished their training program.

Junkers J9, 1917

While the first post-war German jet pilots were taking flight training in the United States, Great Britain, or 'Fürsty', the Bundesluftwaffe accepted Canadair F-86 Sabre Mk Vs from the Canadian Government, F-84F Thunderstreaks and RF-84F Thunderflashes from the Government of the United States. So, having finished their refresher or training programs the German pilots had suitable combat aircraft at their disposal.

To meet the NATO requirements the Bundesluftwaffe (GAF)



Messerschmitt Bf 109G **of 1. JG 27, 1944.**

F-104G **of WaSLw 10 makes a low-level pass at Jever AFB in the spring of 1967. Note practice bomb rack on center line.**

purchased an additional 450 F-84F's, 100 RF-84F's, 255 Canadair F-86's Mk VI and 55 North American F-86K's as first line equipment for its new wings.

The following years were used to find successors to this initial equipment. After various tests and evaluation programs the Lockheed F-104 Starfighter was finally chosen. The Bundesluftwaffe bought the multi-purpose version of the F-104G 'Starfighter' allowing it - after changing certain elements - to function as a fighter, fighter-bomber or reconnaissance aircraft.

Besides the F-104 the need for a light tactical support and reconnaissance fighter arose and the NATO conceived Fiat G-91R/3 was chosen. The present need for a better and longer range reconnaissance jet caused the replacement of the RF-104G's within the Recce Wings by the RF-4E 'Phantom' in 1971, and in 1973/74 the F-4F fighters are replacing the F-104G's in the service of the New Luftwaffe.

After various changes in organization and types of aircraft flown, the post-war Luftwaffe enters 1974 as follows:

2	Fighter Wings (Jagdgeschwader - JG)	JG 71 'Richthofen'	F-104G
		JG 74	F-104G
5	Fighter Bomber Wings (Jagdbombergeschwader - JaboG)	JaboG 31 'Boelke'	F-104G
		JaboG 32	F-104G
		JaboG 33	F-104G
		JaboG 34	F-104G
		JaboG 36	F-104G
4	Light Combat Wings (Leichte Kampfgeschwader - LeKG)	LeKG 41	G-91R/3
		LeKG 42	G-91R/3
		LeKG 43	G-91R/3
		LeKG 44	G-91R/3
2	Reconnaissance Wings (Aufklarungsgeschwader - AG)	AG 51	RF-4E
		AG 52	RF-4E
2	Air Transport Wings (Lufttransportgeschwader - LTG)	LTG 61	Transall C-160D
		LTG 63	Transall C-160D
1	Helicopter Transport Wing (Hubschrauber Transport Geschwader - HTG)	HTG 64	Bell UH-1D
1	Training Command USA (Deutsches Luftwaffen Ausbildungs Gruppe)	DtLwAusbGrp	T-37B, T-38A, F-104G
2	Weapon Schools (Waffenschule der Luftwaffe - WaSLw)	WaSLw 10	F-104G, TF-104G
		WaSLw 50	G-91R/3, T-33A
1	Executive and (Staff/VIP) Liaison Wing (Flugbereitschaft - FlbschftBMVg)	FlBschftBMVg	Boeing B-707/307, C-140 Jetstar, HFB 320, CV-440 Metropolitan, Dornier Do-28D

Besides this flying base some training aircraft are assigned to the different wings: TF-104G, G-91T/3, T-33A, Do-28D. Lastly three special flying units should be mentioned:

1	Air Force Academy (Offizierschule der Luftwaffe - OSLw)	OSLw (Screening)	Piaggio Pi-149D Do-27 L-18
1	Survey and NASARR Unit (Flugvermessungsstaffel)		Douglas C-47 C.Mk 54 Pembroke, H.S. 748
1	Evaluation and Test Unit 61 (Erprobungsstelle 61)		new aircraft

THE AUTHORS

Republic F-84F 'THUNDERSTREAK'

The **F/RF-84F** series of aircraft were the final growth version of the combat proven Thunderjet design. Early success and combat potential of the swept-wing F-86 design prompted Republic Aviation to begin work on the swept-wing version of their F-84. Less than three weeks before the outbreak of the Korean War, this version made its maiden flight at Muroc AFB, California. Performance was improved dramatically, even with the 5,200 lb. thrust Allison J-35 engine. Seeking to improve take-off, climb, and high altitude performance further, the United States negotiated an agreement with Britain wherein the Armstrong-Siddeley Sapphire engine, putting out 7,200 lb. of thrust, was to be license built in the U.S. by Curtiss-Wright as the J-65. The first **YF-84F** prototype was built with the nose intake, while the second prototype employed the wing root intakes. The first production F-84F flew in November of 1952, and deliveries to operational units began about a year later.

The **F-84F** was eventually chosen to replace earlier model Thunderjets as the standard NATO fighter/bomber. The first NATO nation to receive the F-84F was France, re-equipping five of its Escadres in 1955. These were the only F-84F's to see combat, fighting on the Israeli side in the Suez Crisis of 1956.

The new German Luftwaffe received more F-84F's than any other NATO country, eventually equipping five Jagdbombergeschwaders with the Thunderstreak. JaboG 31 was the first to operate the F-84F, followed by JaboG 32, 34, 35, and 36. The GAF flew the F-84F until the **F-104** became available. Some of the German Thunderstreaks eventually found their way to Turkish and Greek Squadrons.

The **RF-84F** became the most popular reconnaissance aircraft of its day, though only a total of 715 were built, 386 of this number were sent overseas under provisions of the Mutual Aid Program, and served with the air arms of Germany, France, Belgium, Netherlands, Denmark, Norway, Italy, Greece, Turkey, and Nationalist China. The Bundesluftwaffe equipped two reconnaissance squadrons, Aufkl 51 and 52, with the Thunderflash.

PERFORMANCE DATA

	F-84F	RF-84F
Max speed at sea level	658 mph	629 mph
Max speed at 35,000 feet	608 mph	582 mph
Stalling speed	151 mph	166 mph
Service ceiling	37,500 ft.	36,500 ft.
Time to 35,000 feet	7.2 min.	11.6 min.
Combat radius	856 miles	840 miles
Combat weight	18,700 lbs.	20,091 lbs.

Thunderstreak **of JaboG 36. Nose and left wing tank tip are red. Note white horse on vertical fin and unusual shark mouth on right wing tank. Unusual operation of upward swinging canopy gave better seal than sliding type of bubble top.**

Pair of F-84F's of JaboG 32 during formation takeoff. They are carrying two 450 gallon drop tanks on inboard stations. Inboard pylons would also accommodate 2,000 lb. bombs.

JaboG34

F-84F of JaboG 34. Note special patch on top of vertical fin. Colors are: Blue wing, white lightning bolt, black airplane. This photo taken shortly before JaboG 34 received F-104G's in replacement of their 84's.

Three views of a F-84F of JaboG 32, which participated in the tactical weapons meet of the 4th Allied Tactical Air Force in 1962 and 1964, as evidenced by the patches carried on the tail. Patches are blue with white lettering. The blue has faded considerably on the older patch. Fairing under rear fuselage contains the 16 ft. diameter braking parachute, which reduces stopping distance by 1,000 feet. F-84F, along with later models of the F-86, pioneered the all-flying tail.

Republic RF-84F 'THUNDERFLASH'

Aufkärungsgeschwader 52 line-up of F-84F's. Note yellow nosetips on aircraft No. 100 and up, red nosetips on aircraft No. 200 and up.

AG 51

Pilots of AG 52.

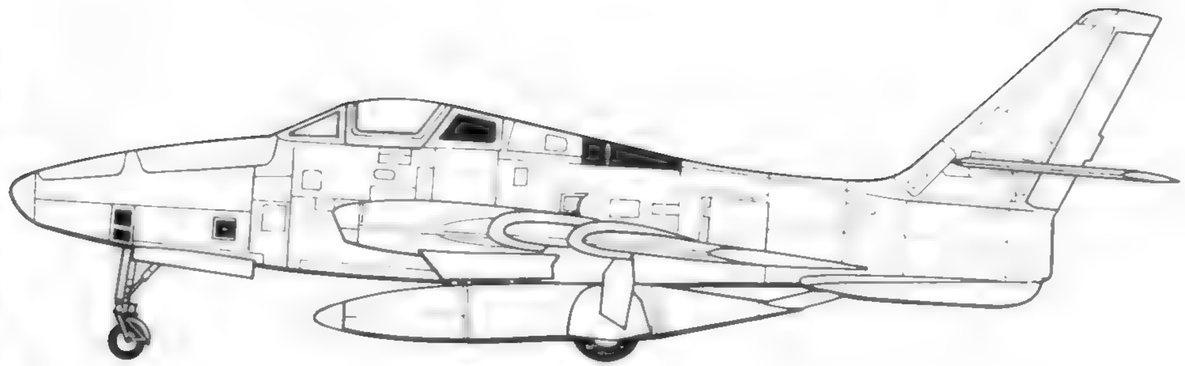
AG 52

(Above) RF-84F, **of AG 52, pulls in close on leader's wing. Early models of the Thunderflash carried four fifty caliber wing guns, with 400 rpg.**

(Above Right) Mickey Mouse on the tail of F-84F of JaboG-32.

(Below Right) Shiny new RF-84F's **of AG-51 "Immelmann".**

(Below) Thunderflashes **of AG-51 at dress right dress. (See color profile for markings details.)**



RF-84F

Close-up of cockpit area and wing-root intake of RF-84F of AG-52. One of the principle advantages of the F-84 design was the relatively low thrust loss suffered by addition of wing-root intakes and lengthened nose, which accommodated six cameras.

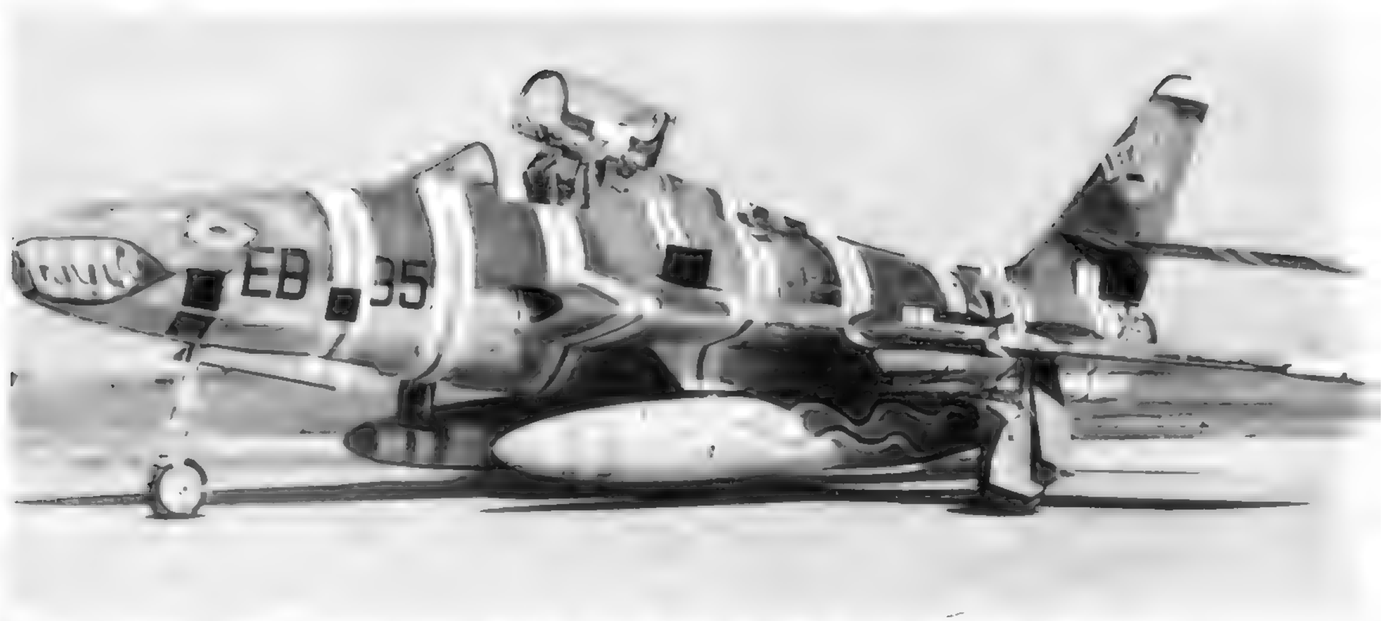
Low-level twentieth century intrusion upon the centuries-old calm of a Northern Germany farm by an RF-84F of AG-52. Nose and wingtips of Thunderflash are yellow. Marking details of windmill unavailable.

AG-51 RF-84F. Note size of drag chute housing.

(Left) Five RF-84F's of AG-52 with drop tanks slung under their wings flying in close formation over the North Sea.

(Below Left) Unintentional jettison of 450 gallon wing tanks from AG-52 Thunderflash.

(Below Right) RF-84F of AG-52 at low level down the Elbe River.

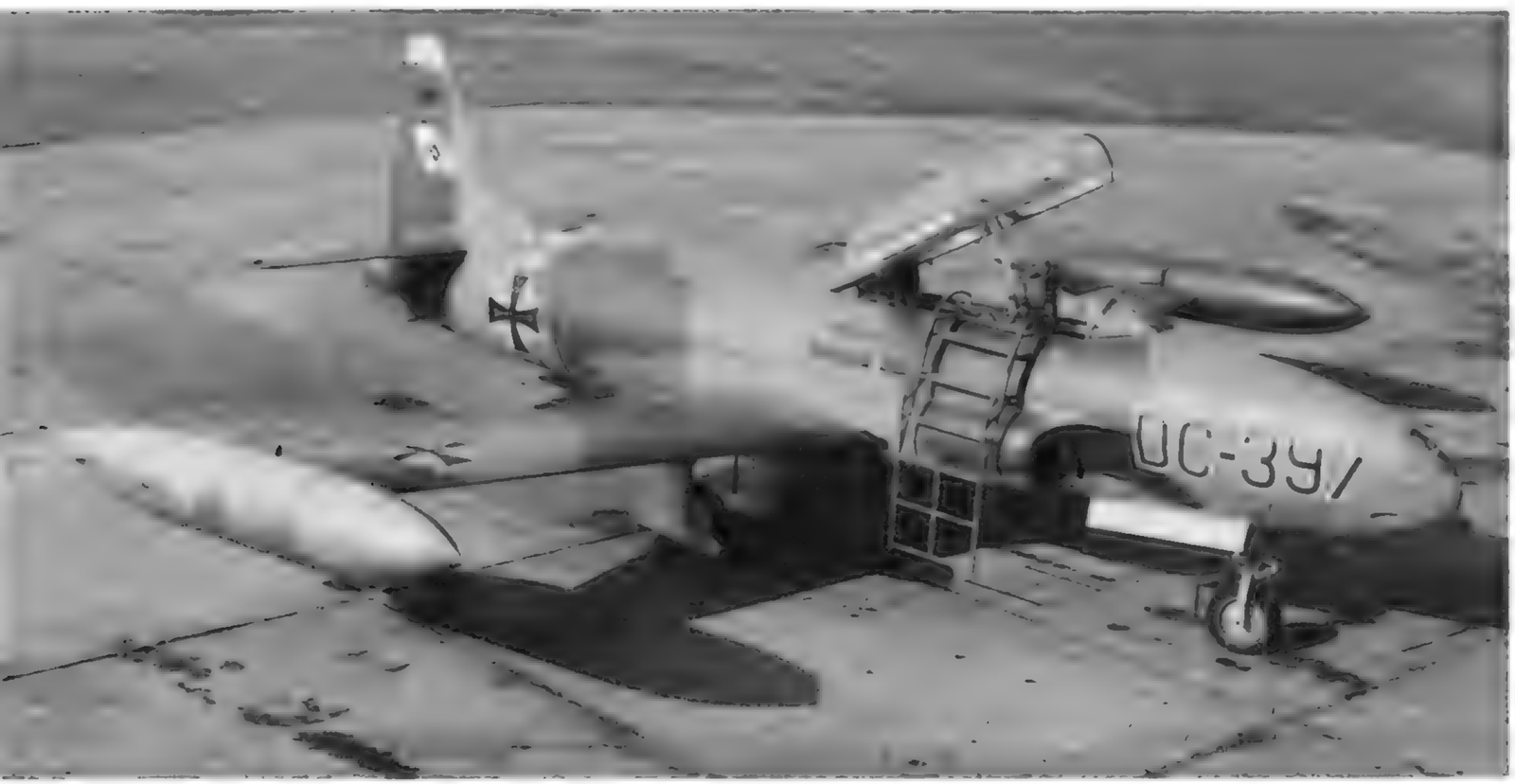


(Above) "Letzter Vogel" sheds latex tears on the ramp at Leck AFB prior to final flight.

(Left) Tail of satirically marked RF-84F of AG-52. "Letzter Vogel" (Last Bird) was the last Thunderflash operated by AG-52 before they transitioned to the RF-104G. Fuselage bands are yellow, with red center stripe. Red lettering, with white outline. Basic colors of mottle, sharkmouth, eyes, etc. are red/white/yellow.

(Below) With Sgt. G. "Keule" Schmidt at the controls, "Letzter Vogel" enroute to Erding AFB, during final AG-52 flight. 8/31/66.

LeKG 44



T-33A of LeKG 44 (top left). The new Luftwaffe procured 193 "T-Birds". They saw service with nearly every wing, as trainers and courier aircraft. Photo at left is of a "T-Bird" of JaboG 33. Both in standard camouflage schemes.

Canadair SABRE 6

The North American F-86 Sabre was the premier free-world fighter at the time of Canadian entry into the North Atlantic Treaty Organization. The RCAF, faced with new military commitments to live up to, and with equipment that was largely obsolete, negotiated an agreement with North American that would allow it to license build the F-86 in Canada. Canadair, which built the Sabre in Canada, was not satisfied to build copies of the American version, and began a development program of its own.

By the time the **Sabre 6** version came along, Canadair Sabres were outperforming their U.S. counterparts handily. The Sabre 6, powered by a Canadian developed and built Orenda 14 engine, was capable of 710 mph at sea level (compared with 678 mph speed of the F-86F). The Canadair Sabre was sold to several countries, in versions **Mk I to Mk 6**, before the new German Luftwaffe came on the fighter procurement market. Other countries to operate the Candair Sabre were Great Britain, Italy, Greece, Turkey, Yugoslavia, Columbia, and South Africa.

The Bundesluftwaffe became Canadair's second largest Sabre customer (the RAF was the largest) with the purchase of the final 225 Mk 6's to roll off the assembly line. The Sabre 6's equipped three day fighter wings, JG-71, JG-72, and JG-73. German Sabre pilots received their training in Waffenschule 10, at Oldenburg. The Sabre remained the first-line interceptor of the GAF until the F-104 became available.

Upon procurement of the F-104, the Luftwaffe changed the role of its Sabres to that of fighter-bomber. JG-71 traded its Sabres for the ultra-hot 104, but JG-72 and 73 kept theirs and changed their squadron designation and mission to JaboG (Jagdbombergeschwader). German Sabres soldiered on into the late sixties, before the Federal Republic began to sell them to other nations, where they could begin their careers anew. One of the first customers to buy the surplus GAF Sabres was the Imperial Iranian Air Force, which received ninety of the Mk 6's.

CANADAIR SABRE 6 PERFORMANCE

Take-off run (Standard conditions)	**1,150 ft.**
Max power rate of climb	**11,800 ft./min.**
Time to 40,000 feet at max power	**6 min.**
Landing distance	**1,850 ft.**
Max range (two 200 gallon drop tanks at 40,000 ft.)	**1,550 miles**
Stall Speed (power off, 1,500 lbs. of fuel)	**99 knots**
Max Speed at sea level	**710 mph**
at 10,000 feet	**680 mph**
at 36,000 feet	**620 mph**

Sabre 6 **of JG-72. (Which later became LeKG-43) Size and position of maintenance instructions on fuselage is readily apparent in this photo.**

One of many Sabre 6's **still operated by the GAF, this one as a target tow aircraft. Others are also operated in the utility role.**

Sabre 6 **of JG-72 in later camouflage scheme. Worthy of note is the Wing badge on the fuselage, and the distinctive "droop" of full-open speed brakes.**

Well-worn Sabre 6 **of JG-73 on final approach, with everything hanging out. Drop tanks are red and white. Wing badge on tail, under national insignia. Sabre 6 had a final approach speed, with power off, of 135 knots.**

JG 71

JG-71 Sabre's **formating with** RF-84F **of AG-52.**

Sabre 6 of 1. Staffel Jagdgeschwader 71 "Richthofen" in the personal markings of Commander Erich (Bubi) Hartmann at Wittmund, Germany.

Sabre 6 of JG-73, shown with wing slats full-out. Slats were actuated automatically at critical airspeed/angle of attack.

The author of this book, Oberleutnant Hermann Dorner (second from left) during Award ceremonies of members of JaboG 32.

Two views of one of the 88 F-86K's supplied to the GAF. "K" model was an outgrowth of the "Sabre Dog", developed especially for NATO air forces. Primary differences in the "K" and "D" models included simpler fire control system for K, as well as 20mm cannon and pair of AIM-9B Sidewinders in lieu of missile tray under fuselage. Nose of K was also slightly longer, though it retained the APG-37 radar of the D. Bundesluftwaffe flew the K until 1965. In 1966 47 of the Luftwaffe K's were sold to Fuerzas Aerea Venezolanas. The K had a max speed of 693 mph at sea level, combat tactical radius of 270 miles at 550 mph, and an initial rate of climb of 12,000 feet per minute.

JaboG 36

G-91R/3 beginning climb out after take-off. It sports 1969 4th ATAF badge and small "pig" on nose. Pig may be a whimsical reference to G-91 performance.

Fiat G-91

By 1953 the devastating effects of World War II in Europe were well on the way to being alleviated. The North Atlantic Treaty Organization had been formed, and old enemies were allied in the common cause of containing the voraciously threatening communist bloc of Russian and Eastern European countries. To this end, the defense establishments of NATO countries were refurbished, and had started on the road to becoming a vital part of their respective countries' economies.

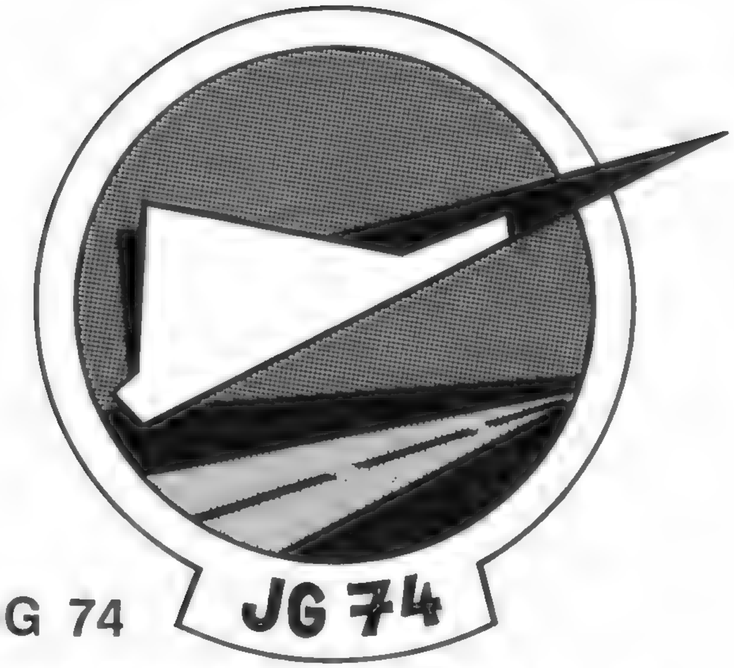
In order to obtain for NATO nations a new light reconnaissance fighter, and at the same time take advantage of the aeronautical engineering expertise in the various countries, a NATO-wide design competition was announced in 1953. The eventual winner of this competition was the **Fiat G-91.** The initial prototype made its first flight in 1956. A pre-production batch of 27 G-91's was then turned out by Fiat. (16 of these eventually were converted for use by the Italian national aerobatic team.) Due to early teething problems, the G-91 was ordered by only the Italians and the new German Luftwaffe.

The first Luftwaffe **G-91's** were **R/3** variants. Seventy-four G-91R/3's were manufactured for the Luftwaffe by Fiat. Another 270 were built by the Dornier/ Messerschmidt/Heinkel consortium under license. Disappointing performance of the G-91's caused the Luftwaffe to cut back on plans to equip several more than the four wings which eventually got the Fiat strike fighter. The **G-91R** is powered by one Bristol Siddeley Orpheus 80302 turbojet rated at 5,000 lb. static thrust.

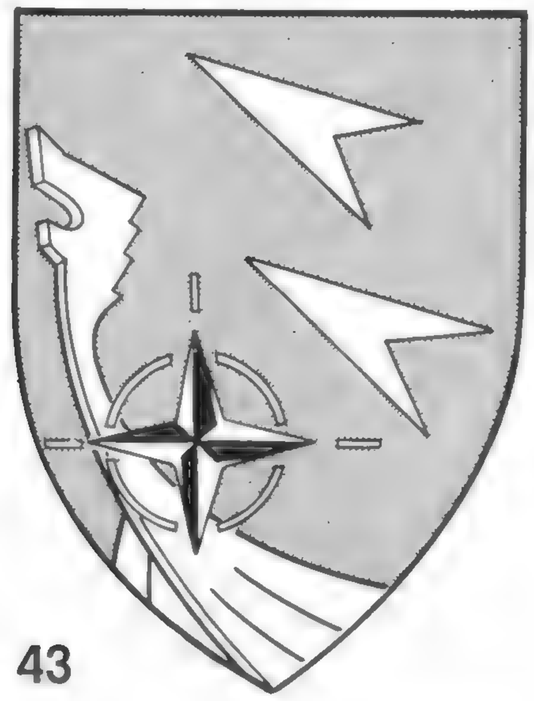
G-91 PERFORMANCE

Max speed	**668 mph at sea level**	**Service ceiling**	**43,000 ft.**
	675 mph at 5,000 ft.	**Combat radius with 10 min loiter**	**196 miles**
	637 mph at 20,000 ft.		
Initial rate of climb	**6,000 fpm**	**Ferry range**	**1,150 miles**

Nose gear and camera position details are evident in this photo of G-91R/3 of LeKG 43.



G-91 scrambles during NATO exercise "Black Sky", in 1971. Luftwaffe G-91's carry the 30mm DEFA cannon as nose armament.



G-91 of LeKG 43, with 2.75 in. rocket pods on outboard stations, about to touch down.

Pair of G-91R/3's lift off in formation. They belong to LeKG-43. Standard camouflage, with dayglo center section on drop tanks.

G-91 of LeKg 43 taxies to the active during NATO exercise "Black Sky" Luftwaffe G-91's carry three Vinten cameras in nose, which allows them to take forward and lateral oblique photographs.

G-91 of LeKG 42, with practice bombs mounted on outboard stations, takes off during 4th ATAF. (Above)

LeKG 42 G-91R-3 performing pre-takeoff runup. Note practice bomb on pylon. Significance of "phantom" silhouette in front of 4th ATAF badge is unknown.

WaSLw 50

WaSLw 10

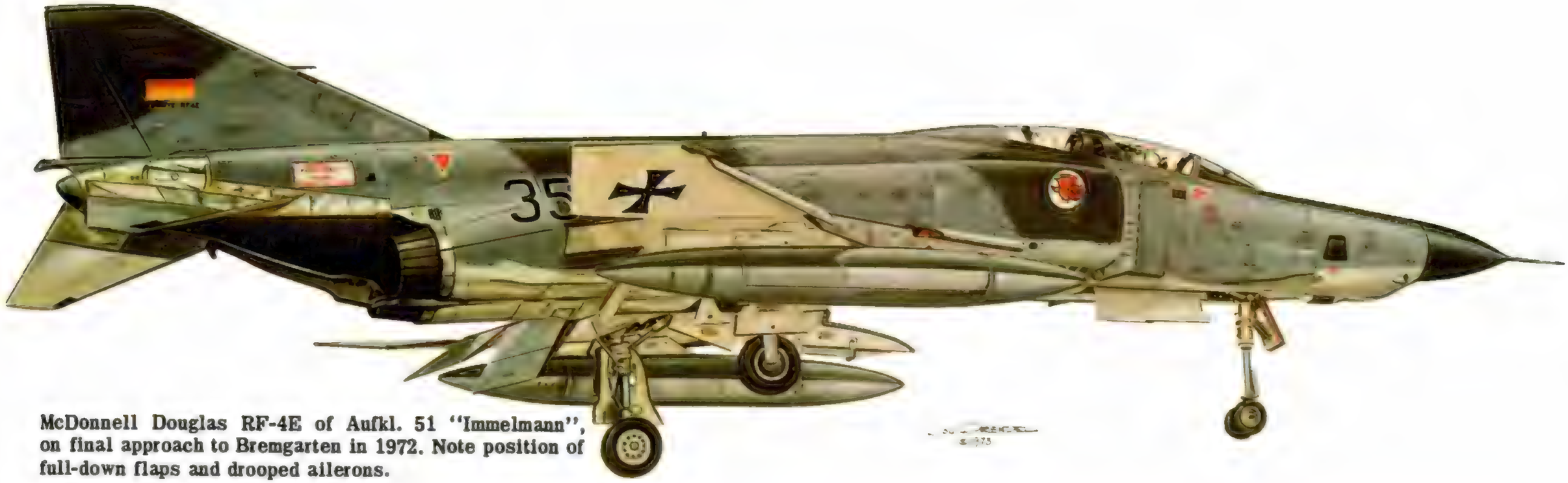
G-91's of LeKG-43 formate on French Super Mystere's. Air arms of NATO often conduct joint exercises.

Subject of one of our color profiles is this G-91R/3 of WaSLw 50.

G-91T/3 of LeKG 44 poses in a sylvan setting. Note original canopy and lack of wing badge.

Fiat G-91T/3 of LeKG 44. Note absence of cannon in nose. (Trainer version has a pair of Colt-Browning 50 cal. MG's.) Open speed brake is also evident. Luftwaffe accepted 44 of the "T" model G-91.

Powered by a British built Bristol Siddeley Orpheus turbo jet, this Fiat trainer has an improved bubble type second canopy.



McDonnell Douglas RF-4E of Aufkl. 51 "Immelmann", on final approach to Bremgarten in 1972. Note position of full-down flaps and drooped ailerons.

G-91 R3 of Le KG42 preparing for take off from Jever. Note 4.A. T.A.F. emblem on fuselage and practice bombs on wing pylons.

F-104G of JaboG 33 taking off from Jever during T.W.M. in 1961.

RF-4E of AG51 at Wiesbaden in June of 1971 shortly after the first F-4's were received.

RF-4E of AG52. Much friendly competition exists between personnel of AG51 and AG52.

Republic RF-84F of Aufkl. 51 taxies out at Manching-Ingolstadt, 1960.

The German pilots nicknamed the Fiat "Gina". In this picture, two G-91's are flying over the pastoral countryside of Northern Germany.

LeKG 41

Relative size of G-91 and RF-104G is evident in this shot of LeKG 41 and AG-52 aircraft in formation.

(Above) JaboG 34 104's **fly by in close formation. (Below) Maintaining a** TF-104G **of JaboG 31. Both canopies and the electronics bay are open.**

Lockheed F-104G 'STARFIGHTER'

The **F-104** embryo was conceived in 1952, with the U.S. Air Force specification for an all-new day air superiority fighter. The men in Lockheed's famous "Skunk Works", who are noted for coming up with new technology, put their heads together and came up with a radical design. The **XF-104,** which first took to the air in February 1954, was over twice as long as its wing span. The razor sharp (they actually had protective covers for the leading edges, to prevent injuries to ground crewmen) wings were only 7½ feet long. They had a 10 degree droop (cathedral) to offset the roll tendencies induced by the high stabilator, which was mounted atop the vertical fin. The initial version was so radical that it took four years of testing and modification before the first **F-104A's** became operational. By the time the first F-104's reached operational squadrons, they were already on the verge of retirement from the Air Force inventory. Their lack of all-weather capability forced the Air Force to remove them from front line service in 1960. Except for a brief stint of ADC service following the Cuban Missile Crisis, the **Starfighter** was in and out of the ranks of active-duty Air Force squadrons within a two year span. The American attempt to diversify the capabilities of the F-104, the F-104C, first flew in 1958. It embodied modifications that permitted its use in the ground attack role. Altogether, 766 **F-104's** were built for the USAF. The Starfighter didn't come in to its own until the new German Luftwaffe made arrangements to acquire it.

Even while the first GAF Wings were becoming operational with their Sabres and Thunderstreaks, the German High Command realized that they would need a front line interceptor and ground attack aircraft if they were to play an effective role in NATO defense plans. After extensive study, they settled on the F-104. The American version, of course, was inadequate for the Luftwaffe's proposed mission, so the men in the "Skunk Works" went back to work to make their design compatible with the GAF requirement.

The multi-mission **Starfighter** required a complete redesign of the basic airframe, which was strengthened to permit the higher "G" loading involved in Tactical Air Support missions. This, along with the installation of the ultra-sophisticated (then) NASARR F-15A-41B navigation and target acquisition system, and several design improvements which rendered it an all-weather airplane, resulted in the **F-104G Super Starfighter.** The Federal Republic signed an agreement to license build the F-104 in Germany on March 18, 1959. Their lead was followed in short order by Canada, Japan, Netherlands, Belgium, and Italy. What was left of World War II German aircraft production was revived and given the task of building a total of 604 F-104G's. Coupled with the Lockheed built F-104G's, this brought Luftwaffe strength up to 700 Starfighters.

STARFIGHTER PERFORMANCE

Short-term max speed (clean)	**1,550 mph (mach 2.3) at 40,000 ft.**
Sustained max speed	**1,320 mph (mach 2) at 40,000 ft.**
Low-level max speed	**915 mph (mach 1.2)**
Time to 35,000 feet	**1.5 minutes**
Combat Ceiling	**55,000 feet**
Tactical radius (with two 162 gal. drop tanks)	**690 miles**
Max ferry range	**1,980 miles**

JaboG 33

Preflight activities around a pair of JaboG 33 Starfighters.

Refilling LOX bottle of an AG 52 RF-104G **at Leck AFB.**

AG-52 ground crewman rushes film cassettes to photo lab at Leck AFB after a recce mission, RF-104G's **carry three cameras for vertical, left and right oblique photography. Pilot can operate cameras individually or collectively.**

Luftwaffe pilots go through pre-taxi checks prior to mission. Note position of angle of attack indicator, just behind radome and below camouflage line.

AG 52 Starfighters **at Memmingen.**

Starfighter **line-up at Memmingen, Germany.**

JaboG 33 pilot preflights his 104. Note that ejection seat warning reads "upward". (Early F-104's had a downward-firing ejection seat, in deference to the high tail of the 104.)

Long camera lens gives close up, if somewhat distorted, view of engine start procedures of JaboG 33 F-104G. Conical wedges in intake guide shock waves at high speed, increasing air pressure before air enters engine. Note main gear details.

JaboG 33 F-104G taxies past earthen revetments enroute to active runway. Note 4th ATAF badge on intake. Midway pivot point of all-flying stabilator is also readily discernible in this view.

JG 74 Starfighter **gropes for the ground shortly before touchdown. Flaps and slats are in full down position.**

JG 71 F-104G, with Sidewinder AAM's mounted taxies out for practice intercept mission. Slim fuselage houses the first production jet engine capable of powering an aircraft to Mach 2-plus speeds, the GE J-79, which delivers 15,800 lb. thrust in afterburner.

Recce pilot of AG-52 climbs down from his RF-104G at Leck. Note flight suit details.

Congratulatory toast for AG-52 pilot after a successful check ride.

STARFIGHTER PILOTS

LECK AFB

Two thousand flying hours accomplished, an impressive tally by this "Starfighter" pilot. Leck AFB, Germany.

TF-104G of AG-52 on final approach to Ramstein AFB during NATO competition "Royal Flush '71". Note small Canadian flag just behind intake.

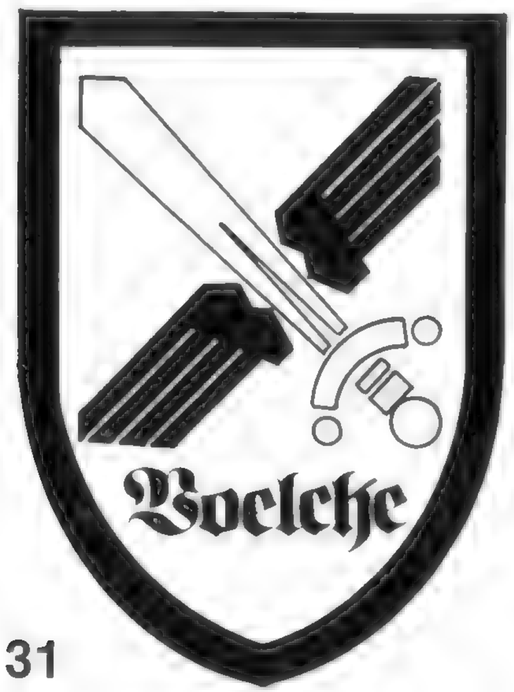
JaboG 34 F-104G on hardstand in front of armored and weatherproof hanger. Arresting gear is down, and drag chute compartment door is open. Also in open position are the tail pipe vanes. One of the keys to great speed of the F-104 is the variable diameter of the exhaust nozzles of the J-79 engine.

Detail shot of a camouflaged tip tank of a TF-104G of JG 74.

TF of AG-51 taxies to the active. Safety pins will be removed just before takeoff.

AG-52 TF-104G at Woodbridge, England during NATO "Tiger Meet" in 1969.

JaboG 34 TF-104G on common ground with USAFE F-100F.



JaboG 31

TF-104G of JaboG 31 taxies past RAF Canberra during NATO competition. TF's are often used as "umpire aircraft" during competitions.

(Right) TF-104G taxies back to revetment postmission. Note early use of letter prefix to radio call sign.

(Below Right) A TF-104G landing with drag chute deployed.

(Below) TF-104G leaps skyward with the aid of full afterburner.

RF-4E of AG 52. Note canted position of nose gear drag link.

McDonnell Douglas RF-4E 'PHANTOM II'

There is little that can be said, that has not been said elsewhere, about the development history of the Phantom. Its history is the history of contemporary airpower in the 1960's, for there are few missions that the Phantom has not undertaken, in both peace and war. It is the most prolific free-world modern fighter, with well over 4,000 examples having been produced to date. It is operated by the air arms of the United States, Great Britain, Japan, South Korea, Iran, Israel, Greece, Spain, Australia, and West Germany.

The original **RF-4** was the **"C"** version, for the USAF, which first flew in 1964. The RF-4 retains the basic engine/airframe configuration that has made the fighter version of the Phantom so successful. In its modified nose, the RF-4 carries optical, electronic, and infra-red sensors. Cameras of varying focal lengths and operational modes are carried in: The Forward Oblique Station (two position camera mount), The Panoramic Station (180 degree lateral coverage or tri-camera station with three framing cameras), Alternate Side Oblique (right or left oblique framing cameras in center bay). Night photography capability is provided by photo flash cartridges that can be ejected upward from either side of the aircraft.

The Electronic systems of the reconnaissance **Phantom** also permit night or bad weather surveillance. The forward looking radar, through the ground mapping mode, provides check point identification and radar navigation capability, by way of terrain following. The side looking radar provides high resolution terrain mapping on either side of the aircraft. The Infra-red Reconnaissance System (IRRS) is used to obtain thermal mapping of the target area at night or in the day.

The Phantom's photographic system is capable of in-flight development of film, and airborne ejection of special cassettes, to speed dissemination of the results of its mission. The Auxiliary Data Annontation Set imprints upon the film data from the aircraft's navigational equipment, to aid in interpretation of the film.

As the decade of the Seventies approached, the Luftwaffe realized that it would have to replace their F-104G's with a newer and more truly diverse aircraft. Like so many before them, The Federal Republic chose the Phantom. The initial version supplied to the Luftwaffe was the **RF-4**, 88 of which were purchased. The Luftwaffe also purchased the **F4-F**, the highly maneuverable **"dogfight"** version of the Phantom. Deliveries of the F-4F will commence in 1974.

RF-4E PERFORMANCE

Max speed	**Mach 2.4 (1,584 mph at 48,000 ft.)**
Initial rate of climb	**28,000 feet per minute**
Approach speed	**135 mph (F-4F has boundary layer control deleted because of maneuvering slats, adding 10 mph to approach speed)**
Service ceiling	**70,000 ft.**
Combat radius	**600 miles**
Ferry range	**2,300 miles**

Luftwaffe's first RF-4E, reached AG 51 in 1971. "Spirit of St. Louis" is in reference to the home of the Phantom.

(Below) Unauthorized modification to AG 52 wing badge was applied by ground crews. (AG 52 cat "eating up" AG 51 owl.)

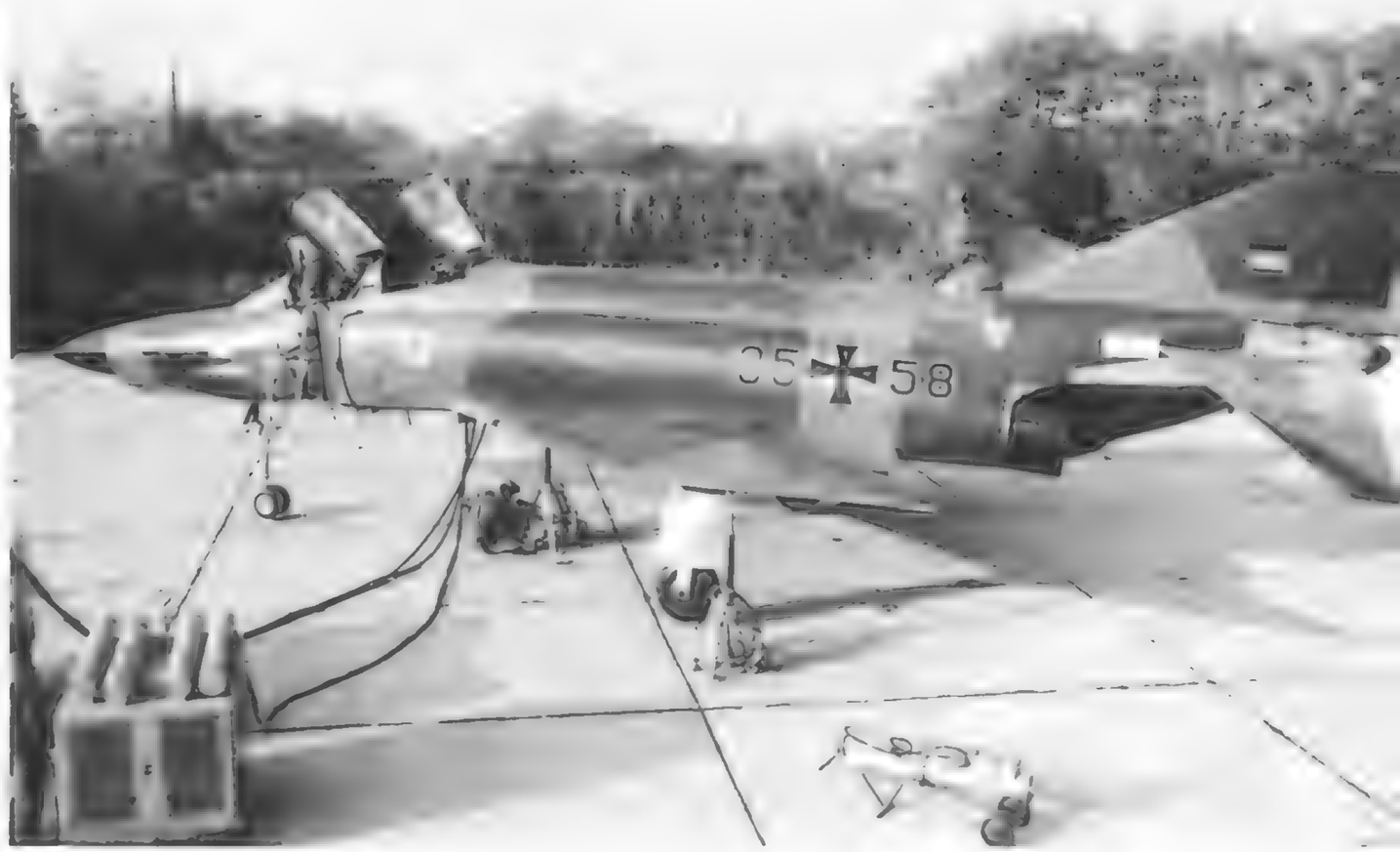
(Above) RF-4E of AG 52.

(Above Right) AG-51 RF-4E. Position of maintenance stenciling is readily apparent. RF-4 employs a vertically stabilized camera mount, which consists of a stabilized platform and electronics package, which ensures consistant track on photo missions, regardless of aircraft pitch and roll.

(Below Right) RF-4E of AG 51. The Bundesluftwaffe originally intended to purchase a single seat version of the Phantom, assuming that it would be cheaper. However, cost analysis studies have shown that the two man Phantom is less expensive to procure.

Formation of AG 51 Phantoms. Dirt and weathering on bottom of wing and centerline tanks is very evident.

(Right) AG 51 Phantom on jacks for maintenance. All landing gear is extended fully. RF-4 is 33 inches longer than all other models of the F-4, with the exception of the F-4E.

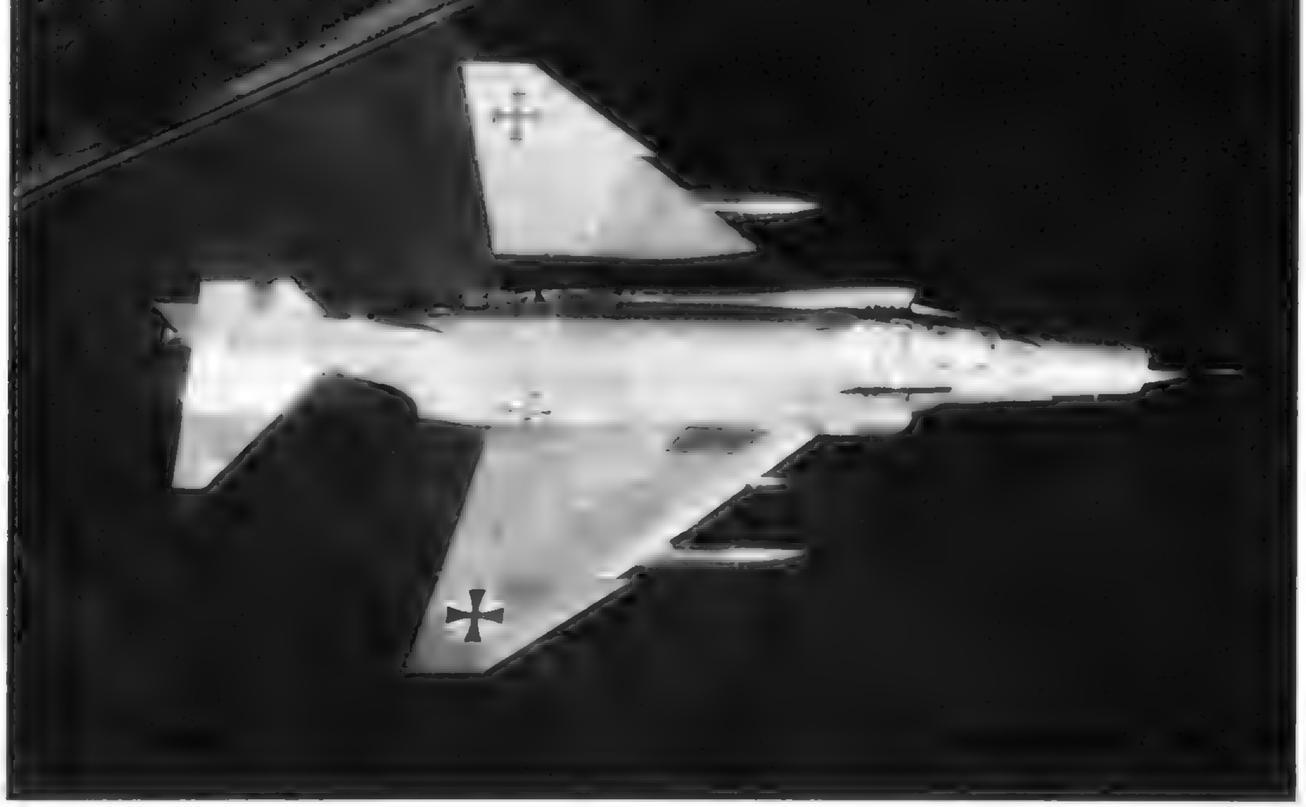


AG 52 Phantoms about to embark upon a mission.

(Right) RF-4E of AG 51. IFR "hood" is in stowed position.

(Below Right) Four Phantoms of AG 51 waiting for ATC clearance at Bremgarten, October 1972.

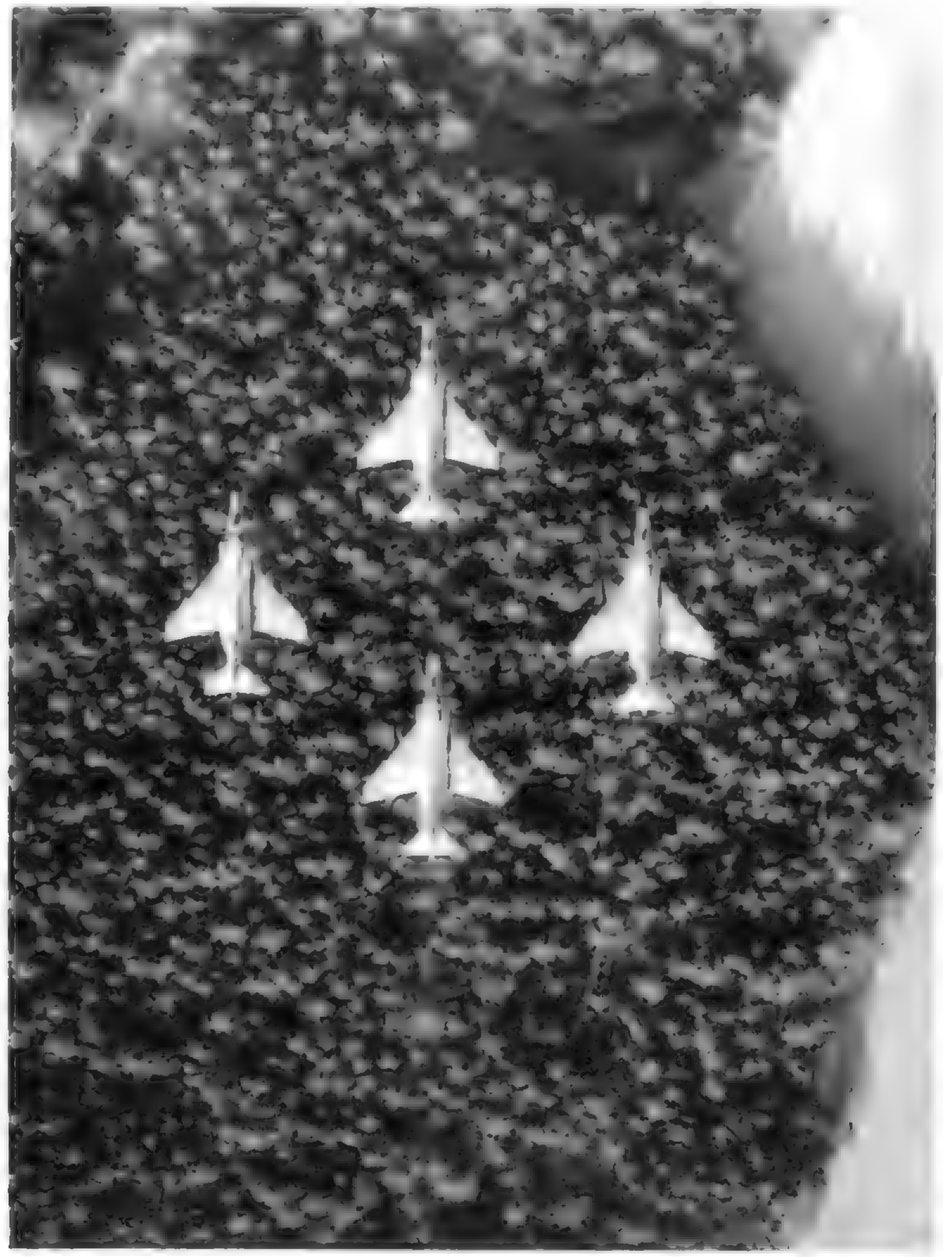
(Below Left) Emblem of AG 52 with Bavarian colors of blue and white in the background.



RF-4E of AG 52.

(Below Left) Phantom of AG 52. Note camouflage pattern, and light and dark splotches on same.

Flight of four from AG 52.



Piper L-18 **of Luftwaffe sport-flying group.**

Piaggio P-149 D **of LeKG 41 (Leichte Kampfgeschwader 41).**

North American AT-6 **of former Flugzeugfuhrerschule "A" (Flying School A), based at Landsberg/Leck.**

Piaggio P-149 **was adopted in 1955 as the standard basic trainer for the GAF. Piaggio supplied 72, and 190 were license built in Germany by. Focke-Wulf.**

Dornier DO-27 **first flew in October of 1956 in Germany. It has excellent low speed characteristics, with double slotted flaps and leading edge slats. Luftwaffe ordered 428.**

FFS „S"

Ex-NASARR trainer of Flugvermessungsstaffel Lagerlechfeld.

(Above Left) C-47 fitted with F-104 nose for it's role as NASARR trainer. Rudder, fuselage and engine nacelle bands are orange.

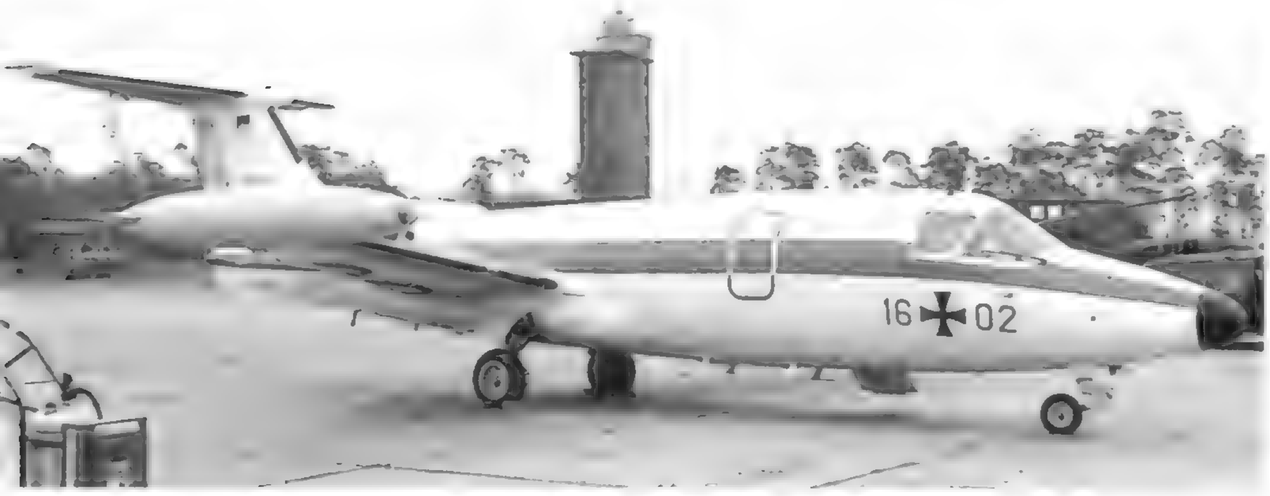
Douglas C-47. Rudder is dayglo orange.

Hunting-Percival "Pembroke C Mk. 54" **a Luftwaffe liaison and photo aircraft.**

DeHavilland Pembroke **"Flying Classroom" of Flugvermessungsstaffel Lagerlechfeld.**

Dornier Do-28 D2 "Skyservant" **a STOL transport and liaison aircraft.**

Convair **staff transport was used by the Inspector of the German Air Force.**



MBB-HFB 320 Hansajet **used as staff and VIP transport.**

Lockheed C-140A Jetstar **staff transport. Luftwaffe ordered two Jetstars, which cruise at 495 mph at 40,000 feet.**

Transall C-160 **was the result of the first Franco-German aircraft industry links. It can carry up to 81 troops, or a wide variety of military vehicles up to 33,000 lbs. Luftwaffe agreed to purchase 110 of these transports, which have a cruising speed of 317 mph and service ceiling of 27,700 feet.**

Nord Noratlas **of LTG 62. Noratlas was developed by the French to replace JU 52's and C-47's, and was eventually adopted by four Air Forces, including the Luftwaffe, Israel and Portugal, besides the French AF. It can carry 36 paratroops, or tracked or wheeled military vehicles.**

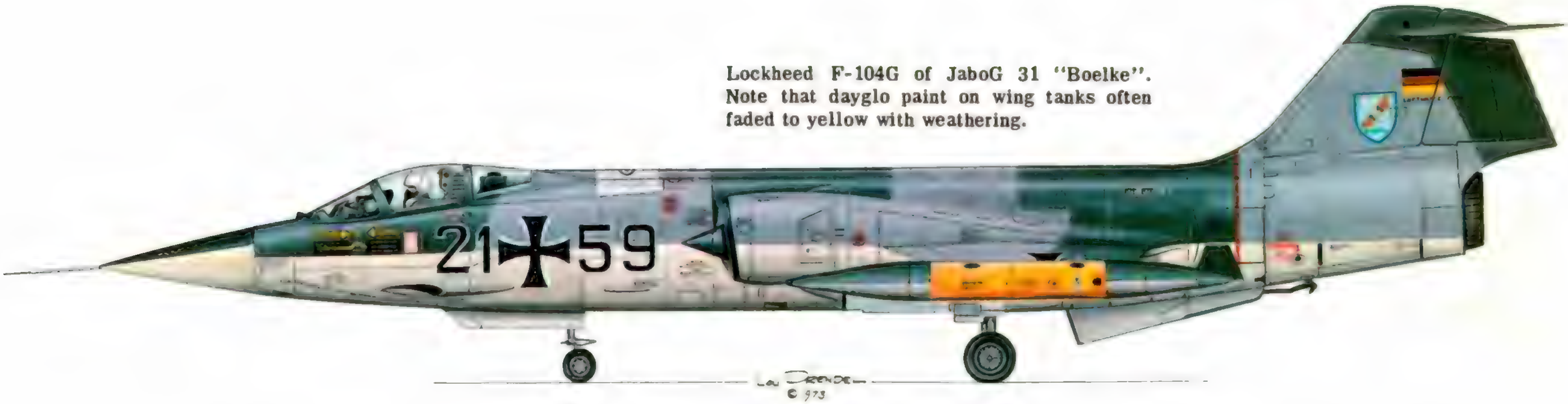
(Above) Port and starboard views of the new Dassault-Breguet-Dornier Alpha Jet. The aircraft illustrated carries Armee de l'Air markings on the starboard side and Luftwaffe markings to port as a symbol of its joint sponsorship.

The Alpha Jet is intended to replace the Luftwaffe's T-33's in the training role while also having a light attack capability.

First F-4F for the Federal German Air Force is rolled out at McDonnell plant in St. Louis. The Chiefs of Staff of all the Air Forces of Germany's NATO allies attended the ceremonies. Lieutenant General Guenther Rall, Inspector of the GAF, praised the Phantom, citing it's ingenious design, versatility, and ruggedness.

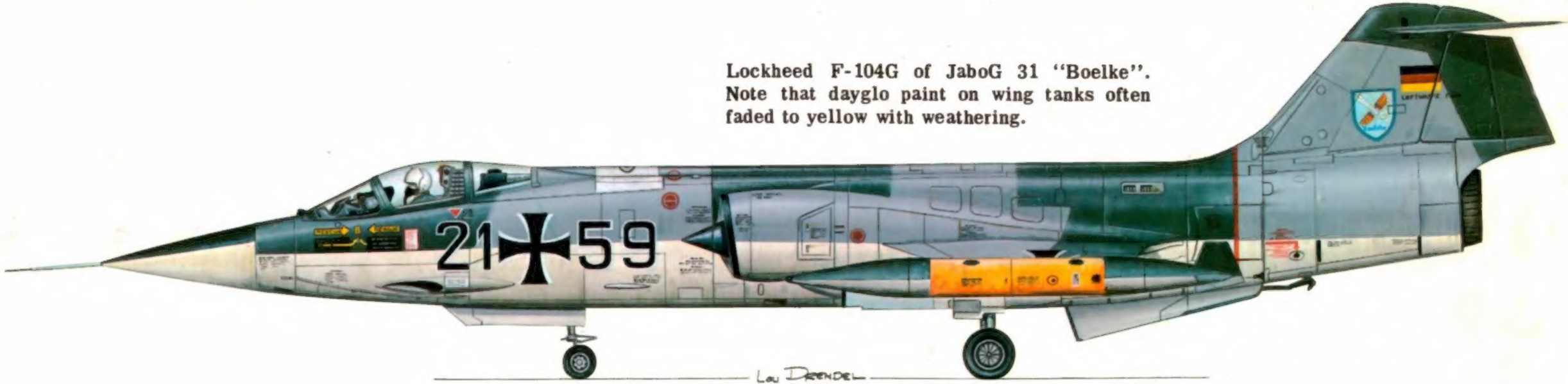
"F" during test flight. It is the latest and most maneuverable version of the Phantom, thanks to the addition of leading edge slats on the wing Combat thrust to weight ratio of the F-4F approached one to one.

Fiat G-91R/3 of WaSlw 50 (Weaponschool 50) as it appeared during NATO exercise "Black-sky" in 1970.



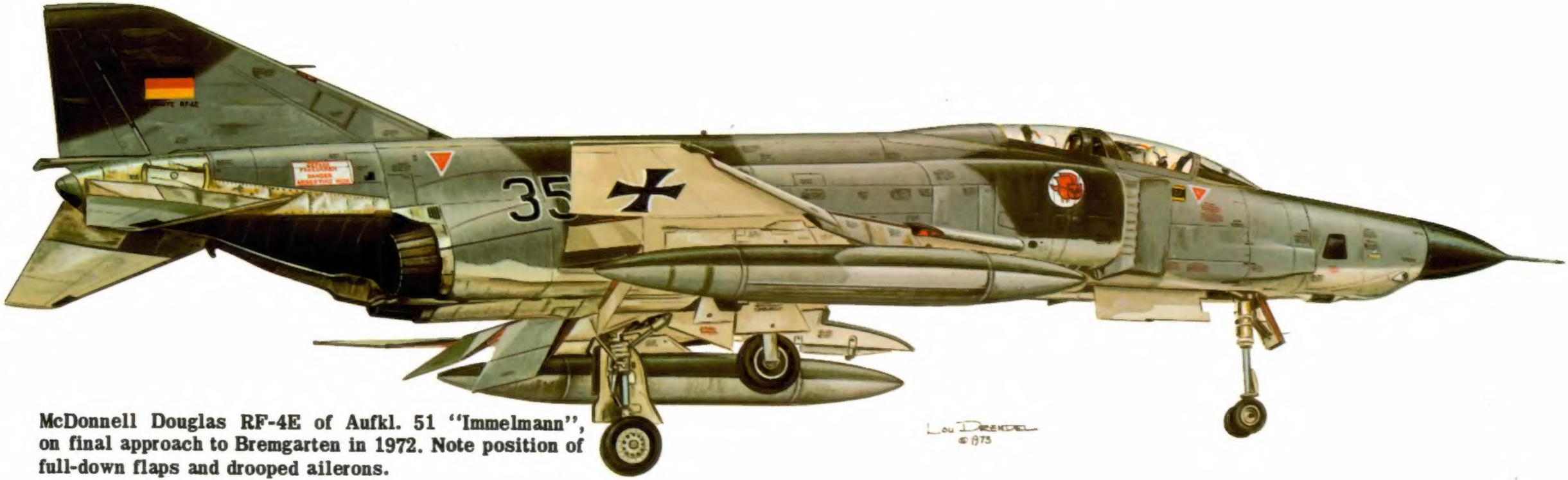
Lockheed F-104G of JaboG 31 "Boelke". Note that dayglo paint on wing tanks often faded to yellow with weathering.

Fiat G-91R/3 of WaSlw 50 (Weaponschool 50) as it appeared during NATO exercise "Blacksky" in 1970.



Lockheed F-104G of JaboG 31 "Boelke". Note that dayglo paint on wing tanks often faded to yellow with weathering.

Republic RF-84F of Aufkl. 51 taxies out at Manching-Ingolstadt, 1960.



McDonnell Douglas RF-4E of Aufkl. 51 "Immelmann", on final approach to Bremgarten in 1972. Note position of full-down flaps and drooped ailerons.